Credit Recovery Alg 1 Sem 1 Sem 1 Rev Wk #1 Name Key

Formulas

Slope formula: $m = \frac{y_2 - y_1}{x_2 - x_1}$

Slope – Intercept form of a line: $y = mx + b$

(h, k) form of a line: $y = m(x - h) + k$

Standard form of a line: $Ax + By = C$

(h, k) form of an absolute value function: $y = m|x - h| + k$

Explicit form of arithmetic sequence: $a_n = dn + a_0$

For #1 – 8: Solve each equation for the variable. If needed, round to one decimal place.

1) $7x + 3 = -11$

$-3 \quad -3$

$7x = -14$

$x = -2$

2) $-5(2d - 8) = 24$

$-10d + 40 = 24$

$-40 \quad -40$

$\frac{-10d}{-10} = \frac{-16}{-10}$

$d = 1.6$

3) $4b - 25 - b + 16 = 45$

$3b - 9 = 45$

$+9 \quad +9$

$\frac{3b}{3} = \frac{54}{3}$

$b = 18$

4) $-8b + 1 = b - 15$

$-1 \quad -b$

$-9b + 1 = -15$

$-1 \quad -1$

$\frac{-9b}{-9} = \frac{-16}{-9}$

$b = \frac{16}{9}$ or $1.7\overline{7}$

5) $-3(11 - 5x) = 2(4x - 6)$

$-33 + 15x = 8x - 12$

$-8x \quad -8x$

$-33 + 7x = -12$

$+33 \quad +33$

$\frac{7x}{7} = \frac{21}{7}$

$x = 3$

6) $14x - 27 + x = 8x + 7(x - 2)$

$15x - 27 = 8x + 7x - 14$

$15x - 27 = 15x - 14$

$-15x \quad -15x$

$-27 = -14$

False

No Solution

7) $11x - 5 + 2x = 13(x - 1) + 8$

$13x - 5 = 13x - 13 + 8$

$-13x \quad -13x$

$-5 = -5$

True

All Real Numbers

8) $\frac{1}{4}y - 3 = 2y - 1$ $\cdot 4 \quad \cdot 4 \quad \cdot 4$

$y - 12 = 8y - 4$

$-y \quad -y$

$-12 = 7y - 4$

$+4 \quad +4$

$\frac{-8}{7} = \frac{7y}{7}$

$y = -\frac{8}{7}$ or -1.14

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9) Solve and graph the solution on the provided number line: $2x - 10 < 4x - 6$

$-4x \quad -4x$

$-2x - 10 < -6$

$+10 \quad +10$

$\frac{-2x}{-2} < \frac{4}{-2}$

$x > -2$

For #10 – 13: $f(x) = -5x - 1$ **and** $g(x) = 3x - 7$.

10) Find $f(-5)$ $= -5(-5) - 1$

$= 25 - 1$

$= 24$

11) Find $g(-4)$

$= 3(-4) - 7$

$= -12 - 7$

$= -19$

12) Find x if $f(x) = 9$.

$-5x - 1 = 9$

$+1 \quad +1$

$\frac{-5x}{-5} = \frac{10}{-5}$

$x = -2$

13) Find x if $g(x) = 14$.

$3x - 7 = 14$

$+7 \quad +7$

$\frac{3x}{3} = \frac{21}{3}$

$x = 7$

For #14 – 15: Find the slope of the line passing through the given points.

14) $(2, 7)$ and $(5, 13)$

$x_1 \; y_1 \quad x_2 \; y_2$

$m = \frac{13 - 7}{5 - 2} = \frac{6}{3} = 2$

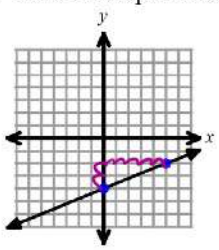
15) $(-9, 4)$ and $(3, -2)$

$x_1 \; y_1 \quad x_2 \; y_2$

$m = \frac{-2 - 4}{3 + 9} = \frac{-6 \div 6}{12 \div 6} = -\frac{1}{2}$

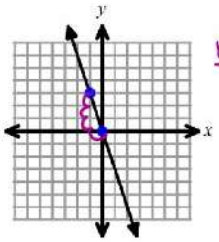
For #16 – 17: Find the slope of the line graphed.

16)



$\frac{\text{rise}}{\text{run}} = \frac{2 \uparrow}{5 \rightarrow} = \frac{2}{5}$

17)



$\frac{\text{rise}}{\text{run}} = \frac{-3 \downarrow}{1 \rightarrow} = -3$

For # 18 – 19: Identify the domain (D) and range (R) of the relation shown.

18) $\{(-5, 6), (11, 2), (3, -1), (-2, -1)\}$

$D: \{-5, -2, 3, 11\}$

$R: \{-1, 2, 6\}$

19)

x	-2	0	3	6
y	11	2	-3	-1

$D: \{-2, 0, 3, 6\}$

$R: \{-3, -1, 2, 11\}$

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For #20 – 23: Is the relation a function? (Yes or no?)

20)

x	y
2	5
3	5
4	5
3	5

Yes

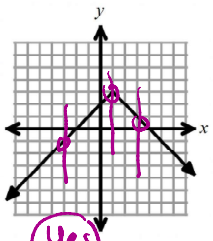
3 → 5

21) $\{(-2,4),(3,4),(-2,8)\}$

-2 → 4, 8

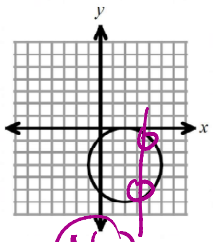
No

22)



Yes

23)



No

24) Solve for x. You do not need to graph the solution. $-3 < \frac{1}{4}x + 2 \leq 5$

$-2 \quad -2 \quad -2$

$-5 < \frac{1}{4}x \leq 3$ · 4

$-20 < x \leq 12$

For #25 – 26: Write a linear function to represent each set of data.

25)

x	−1	0	1	2	3
$f(x)$	7	4	1	-2	-5

y-int

−3 −3 −3 −3 ← slope

$y = -3x + 4$

26)

x	1	2	3	4	5
$f(x)$	6	11	16	21	26

y-int

+5 +5 +5 +5 ← slope

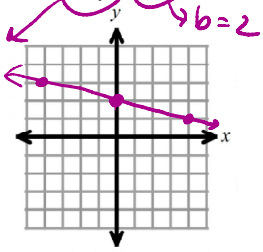
$y = 5x + 1$

For #27 – 31: Graph each line.

27) $y = -\frac{1}{4}x + 2$

slope $= -\frac{1}{4}$ (1 ↓, 4 →)

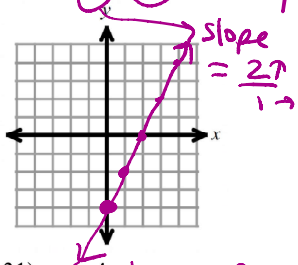
b = 2



28) $y = 2x - 4$

b = −4

slope $= \frac{2}{1}$ (2 ↑, 1 →)

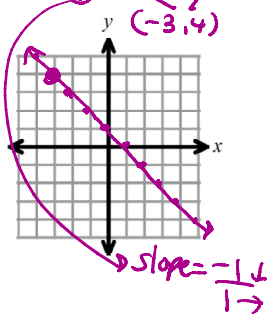


29) $y = -(x + 3) + 4$

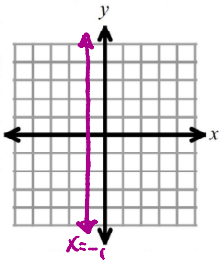
h, k

(−3, 4)

slope $= -\frac{1}{1}$ (1 ↓, 1 →)

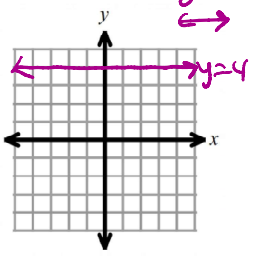


30) $x = -1$ vertical ↕



x = −1

31) $y = 4$ horizontal ↔



y = 4

33. Write the equation, in slope-intercept form, of the line that has a slope of 2 and y-intercept -6.

$y = mx + b$

$y = 2x - 6$

m b

For #34 – 35: Write an equation, in (h, k) form, of the line described below.

34. passes through (-7, 5) and has slope -3

h K

$y = m(x-h)+k$

$y = -3(x+7)+5$

h must change signs

35. Passes through $(-1,4)$ and $(10,-18)$

h K

$x_1 y_1$ x_2 y_2

$m = \frac{-18-4}{10-(-1)} = \frac{-22}{11} = -2$

$y = -2(x+1)+4$

OR

$y = -2(x-10)-18$

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Formulas

Slope formula: $m = \frac{y_2 - y_1}{x_2 - x_1}$

Slope – Intercept form of a line: $y = mx + b$

(h, k) form of a line: $y = m(x - h) + k$

Standard form of a line: $Ax + By = C$

(h, k) form of an absolute value function: $y = m|x - h| + k$

Explicit form of arithmetic sequence: $a_n = dn + a_0$

For #1 – 2: Convert each line to slope-intercept form.

1) $3x - 2y = 8$

$-3x \quad -3x$

$\frac{-2y}{-2} = \frac{-3x}{-2} + \frac{8}{-2}$

$y = \frac{3}{2}x - 4$

2) $-7x - y = 11$

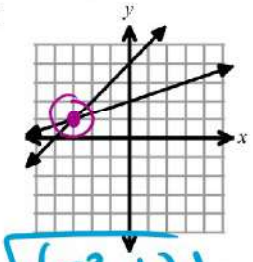
$+7x \quad +7x$

$\frac{-y}{-1} = \frac{7x}{-1} + \frac{11}{-1}$

$y = -7x - 11$

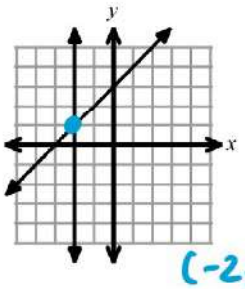
For #3 – 5: What is the solution for each system shown?

3)



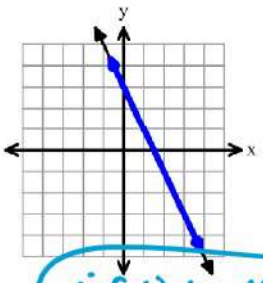
$(-3, 1)$

4)



$(-2, 1)$

5)



Infinitely Many Solutions

For #6 – 9: Decide if each statement below is true or false.

6) A linear system with one horizontal line and one vertical line will have one solution. TRUE

7) A linear system with two lines with the same slope and same y-intercept will have no solution. FALSE (same line)

8) A linear system with two lines with different slopes and different y-intercepts will have one solution. TRUE (1 MS)

9) A linear system with two parallel lines will have no solution. TRUE

For #10 – 11: Solve each system for (x, y). Graphs are provided but are not required.

10) $\begin{cases} y = -3x + 2 \\ y = -x - 2 \end{cases}$ $(2, -4)$

$-3x + 2 = -x - 2$

$+x \quad +x$

$-2x + 2 = -2$

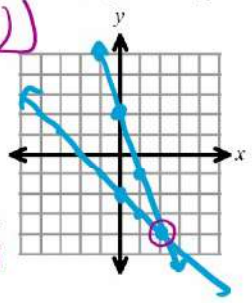
$-2 \quad -2$

$\frac{-2x}{-2} = \frac{-4}{-2}$

$x = 2$

$y = -2 - 2$

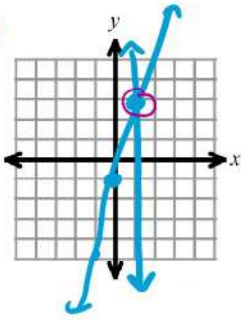
$y = -4$



11) $\begin{cases} y = 4x - 1 \\ x = 1 \end{cases}$ $(1, 3)$

$y = 4(1) - 1$

$y = 3$



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For #12 – 17, solve each system for (x, y).

12) $\begin{cases} y = -x + 8 \\ y = -3x + 18 \end{cases}$

$-x+8 = -3x+18$
$+3x \quad +3x$
$2x + 8 = 18$
$-8 \quad -8$
$\frac{2x}{2} = \frac{10}{2}$
$x = 5$

$y = -5 + 8$
$y = 3$

$(5, 3)$

13) $\begin{cases} 3x + 2y = -2 \\ 7x - 2y = 42 \end{cases}$

$10x = 40$
$\frac{10x}{10} = \frac{40}{10}$
$x = 4$

$12 + 2y = -2$
$-12 \quad -12$
$\frac{2y}{2} = \frac{-14}{2}$
$y = -7$

$(4, -7)$

14) $\begin{cases} -3x + 4y = 11 \\ 2x + 2y = 2 \end{cases}$ $\xrightarrow{-2}$ $-3x + 4y = 11$, $-4x - 4y = -4$

$-7x = 7$
$\frac{-7x}{-7} = \frac{7}{-7}$
$x = -1$

$-2 + 2y = 2$
$+2 \quad +2$
$2y = 4$
$y = 2$

$(-1, 2)$

15) $\begin{cases} 2x - 4y = 18 \\ 5x - 3y = 24 \end{cases}$ $\xrightarrow{-5}$ $-10x + 20y = -90$, $10x - 6y = 48$

$14y = -42$
$y = -3$

$2x + 12 = 18$
$-12 \quad -12$
$\frac{2x}{2} = \frac{6}{2}$
$x = 3$

$(3, -3)$

16) $\begin{cases} 2x + y = -1 \\ -2x - y = 1 \end{cases}$

$0 = 0$

IMS

17) $\begin{cases} -8x + 4y = -36 \\ 2x - y = 4 \end{cases}$ $\xrightarrow{4}$ $-8x + 4y = -36$, $8x - 4y = 16$

$0 = -20$

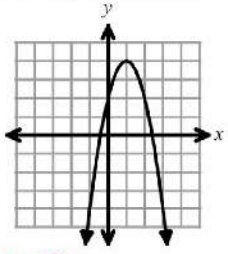
No Solution

18) **Write a system to model this situation:.** A ski store rents skis and snowboards. Nanners rented 2 sets of skis and 3 snowboards, and she spent $180. Johnny rented 4 sets of skis and one snowboard, and he spent $160. Let x = number of sets of skis rented and y = number of snowboards rented.

Nanners: $2x + 3y = 180$
Johnny: $4x + y = 160$

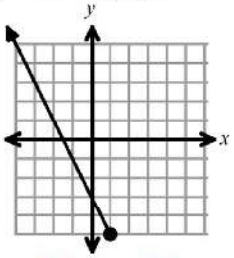
For #19 – 21, write the domain and range of each graph.

19)



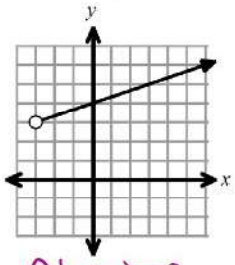
D: $\mathbb{R}$
R: $y \leq 4$

20)



D: $x \leq 1$
R: $y \geq -5$

21)



D: $x > -3$
R: $y \geq 3$

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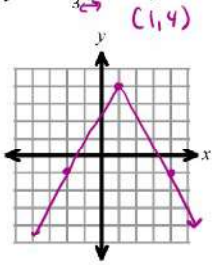
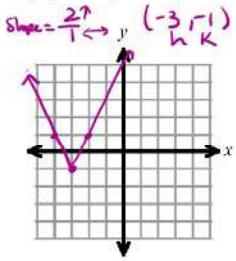
For #22 – 24: Graph each absolute value function.

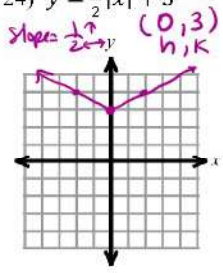
22) $y = -\frac{5}{3}|x - 1| + 4$



23) $y = 2|x + 3| - 1$



24) $y = \frac{1}{2}|x| + 3$



25) Consider the function $f(x) = -5|x + 7| - 3$. What are the transformations from the parent function $y = |x|$ to get the graph of $f(x)$?

Vert reflection, Stretch, left 7, down 3

For #26 – 29: Solve each equation for *x*.

26) $|x - 5| + 3 = 7$

$-3 \quad -3$

$|x - 5| = 4$

① $x - 5 = 4$ ② $x - 5 = -4$

$+5 \quad +5 \quad +5 \quad +5$

$x = 9; \quad x = 1$

27) $2|x| + 6 = -8$

$-6 \quad -6$

$\frac{2|x|}{2} = \frac{-14}{2}$

$|x| = -7$ negative! No!

No Solution

28) $-5|x - 4| = -10$

$\frac{-5}{-5} \quad \frac{-10}{-5}$

$|x - 4| = 2$

① $x - 4 = 2$ ② $x - 4 = -2$

$+4 \quad +4 \quad +4 \quad +4$

$x = 6; \quad x = 2$

29) $-3|x + 1| + 4 = -20$

$-4 \quad -4$

$\frac{-3|x+1|}{-3} = \frac{-24}{-3}$

$|x + 1| = 8$

① $x + 1 = 8$ ② $x + 1 = -8$

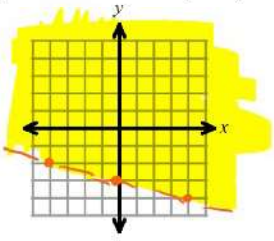
$-1 \quad -1 \quad -1 \quad -1$

$x = 7; \quad x = -9$

For #30 – 31: Graph each linear inequality.

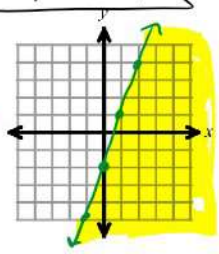
30) $y > -\frac{1}{4}x - 3$

dotted line, shade above



31) $y \leq 3x - 2$

solid line, shade below



For #32 – 33: Write the explicit formula for each arithmetic sequence.

32) 22, 29, 36, 43, 50, ...

15 (y-int); +7 +7 +7 +7 ← slope

$a_n = 7n + 15$

33) 4, −1, −6, −11, −16, ...

9 (y-int); −5 −5 −5 −5 ← slope

$a_n = -5n + 9$

Credit Recovery Alg 1 Sem 1 PRACTICE Final Name Key

Formulas

Slope formula: $m = \frac{y_2 - y_1}{x_2 - x_1}$

Slope – Intercept form of a line: $y = mx + b$

(h, k) form of a line: $y = m(x - h) + k$

Standard form of a line: $Ax + By = C$

(h, k) form of an absolute value function: $y = m|x - h| + k$

Explicit form of arithmetic sequence: $a_n = dn + a_0$

Directions: Do all work on this packet. Write your final answer on the answer document.

1) Solve for x: $-5x + 8 = -4$

A. 2.4
B. 0.4
C. 6.2
D. -3.8

$-8 \quad -8$

$\frac{-5x}{-5} = \frac{-12}{-5}$

$x = 2.4$

2) Solve for d: $2(2d - 3) = -19$

A. −3.25
B. 4.5
C. −6.25
D. −5.5

$4d - 6 = -19$

$+6 \quad +6$

$\frac{4d}{4} = \frac{-13}{4}$

$d = -3.25$

3) Solve for a: $a - 18 + 4a + 12 = 34$

A. −5
B. 8
C. 10
D. −9

$5a - 6 = 34$

$+6 \quad +6$

$\frac{5a}{5} = \frac{40}{5}$

$a = 8$

4) Solve for b: $3b - 18 = -7b + 12$

A. 1.5
B. 10
C. 3
D. −4.5

$+7b \quad +7b$

$10b - 18 = 12$

$+18 \quad +18$

$\frac{10b}{10} = \frac{30}{10}$

$b = 3$

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5) Solve for x: $-(3x+4) = -2(5-x)$

A. 1.2
B. -6
C. -4.4
D. 14

$-3x - 4 = -10 + 2x$
$-2x \quad -2x$
$-5x - 4 = -10$
$+4 \quad +4$
$-5x = -6$
$-5 \quad -5$
$x = 1.2$

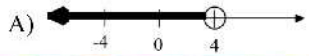
6) Solve for x: $4x - 27 = x + 3(x-9)$

A. -33
B. -39
C. no solution
D. all real #s

$4x - 27 = x + 3x - 27$
$4x - 27 = 4x - 27$
$-4x \quad -4x$
$-27 = -27$
True → All Real #s

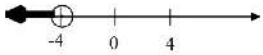
7) What is the graph of the solution of this inequality? $-x - 8 < 3x + 8$

$-3x \quad -3x$
$-4x - 8 < 8$
$+8 \quad +8$
$-4x < 16$
$-4 \quad -4$
$x > -4$
Open circle shade →

A)


B)


C)


D)


For #8 – 9: $f(x) = -4x + 7$ and $g(x) = -3x - 5$.

8) Find $f(-5)$

A. -13
B. 27
C. 3
D. -23

$= -4(-5) + 7$
$= 20 + 7$
$= 27$

9) Find x if $g(x) = 13$.

A. $2.\overline{6}$
B. 7
C. -6
D. -43

$-3x - 5 = 13$
$+5 \quad +5$
$-3x = 18$
$-3 \quad -3$
$x = -6$

10) Find the slope of the line passing through $(3, -7)$ and $(-2, 11)$.

A. $-\frac{18}{5}$
B. $\frac{3}{18}$
C. 4
D. $-\frac{1}{4}$

$x_1 \; y_1 \quad x_2 \; y_2$

$m = \frac{11 + 7}{-2 - 3} = \frac{18}{-5} = -\frac{18}{5}$

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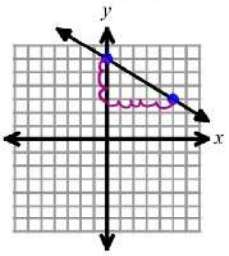
11) Find the slope of the line shown in the graph to the right.

A. $-\frac{5}{3}$
B. $\frac{5}{3}$
C. 6
D. $-\frac{3}{5}$

$m = \frac{\text{rise}}{\text{run}}$ (left to right)

$= \frac{-3\downarrow}{5\rightarrow}$



For # 12 – 13: Identify the domain (D) and range (R) of the relation shown.

12) $\{(-4,2),(1,2),(4,-1),(-5,7)\}$

D: all xs
R: all ys

A) $D:\{-5,-4,1,4\}$; $R:\{-1,2,7\}$
B) ~~$D:\{-1,2,7\}$; $R:\{-1,2,7\}$~~
C) ~~$D:\{-1,2,7\}$; $R:\{-5,-4,1,4\}$~~;
D) $D:\{-5,-4,1,4\}$; ~~$R:\{-5,-4,1,4\}$~~

13)

x	−4	−1	0	2
y	7	−5	3	8

D: all xs
R: all ys

A) ~~$D:\{-5,3,7,8\}$; $R:\{-4,-1,0,2\}$~~
B) $D:\{-4,-1,0,2\}$; ~~$R:\{-4,-1,0,2\}$~~
C) $D:\{-4,-1,0,2\}$; $R:\{-5,3,7,8\}$
D) ~~$D:\{-5,3,7,8\}$; $R:\{-5,3,7,8\}$~~

14) Which relation below is a function? **Select all that apply.**

A)

x	y
2	1
2	5
4	8
6	7

No (2 → 1, 5)

B) $\{(-2,4),(3,4),(3,8)\}$

No (3 → 4, 8)

C)

x	y
1	-7
3	5
4	9
3	5

yes (3 → 5)

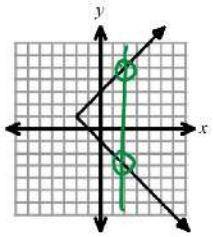
D)

x	2	4	6	7
y	3	-1	3	6

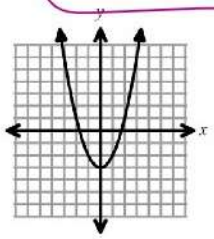
yes

15) Which relation below is **not** a function?

A)

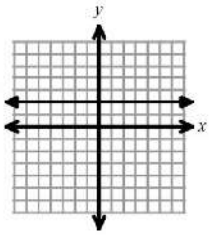


B)

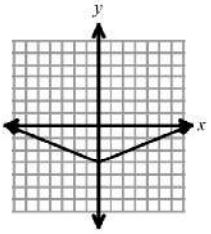


A is not a function (it fails the Vertical Line Test)

C)



D)



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16) What is the solution for the compound inequality $4 < \frac{1}{3}x - 7 \leq 6$

A. $-3.3 < x \leq 4.3$
B. $33 < x \leq 39$
C. $-9 < x \leq -3$
D. $-11 < x \leq 18$

$+7 \quad +7 \quad +7$

$3 \cdot 11 < \frac{1}{3}x \leq 13 \cdot 3$

$33 < x \leq 39$

For #17 – 18: Write a linear function to represent each set of data.

17)

x	−1	0	1	2	3
$f(x)$	3	10	17	24	31

y-int

+7 +7 +7 +7

slope = 7

A. $y = 10x + 7$
B. $y = 7x + 10$
C. $y = 10x + 3$
D. $y = 7x + 3$

$y = mx + b$
slope y-int

18)

x	1	2	3	4	5
$f(x)$	−1	−3	−5	−7	−9

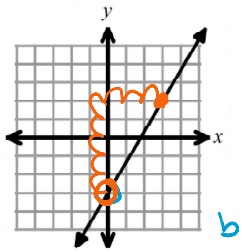
y-int

−2 −2 −2 −2 ← slope

A. $y = -2x - 1$
B. $y = x - 2$
C. $y = -2x + 1$
D. $y = x + 2$

For #19 – 20: What is the equation of the line graphed?

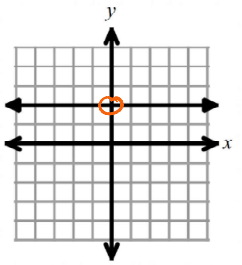
19)



A. $y = \frac{3}{5}x + 2$
B. $y = -\frac{5}{3}x - 3$
C. $y = -\frac{3}{5}x + 2$
D. $y = \frac{5}{3}x - 3$

b = -3 m = $\frac{5\uparrow}{3\rightarrow}$

20)



A. $y = 2x$
B. $y = x + 2$
C. $x = 2$
D. $y = 2$

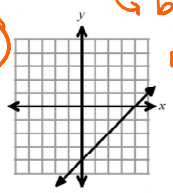
horizontal ↔
$y = \#$

For #21 – 22, which line is the graph of the given equation?

21) $y = |x - 4$

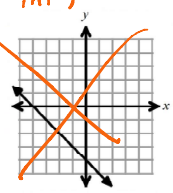
b = -4 (y-int)

A)

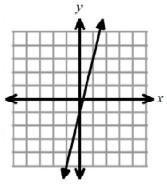


m = $\frac{1\uparrow}{1\rightarrow}$

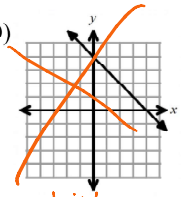
B)



C)



D)



must go uphill (positive slope)

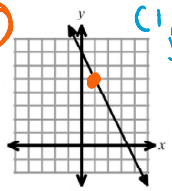
22) $y = -2(x - 1) + 5$

h k

(1, 5)

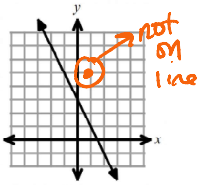
h changes signs

A)



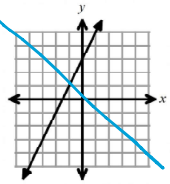
m = $\frac{-2\downarrow}{1\rightarrow}$

B)

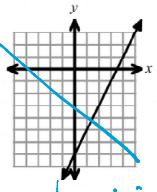


not on line

C)



D)



must go downhill (negative slope)

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23. Write the equation, in slope-intercept form, of the line that has a slope of -1 and y-intercept 3.

A. $y = 3x - 1$
B. $y = -x + 3$
C. $y = 1x - 3$
D. $y = -3x + 1$

$y = mx + b$ (slope, y-int)

$y = -1x + 3$

For #24 – 25: Write an equation, in (h, k) form, of the line described below. $y = m(x-h)+k$

24. passes through (-7, 5) and has slope -3 (h k m)

A. $y = -3(x + 7) + 5$ $y = -3(x+7)+5$
B. $y = -3(x - 7) + 5$
C. $y = -3(x + 7) - 5$
D. $y = -3(x - 7) - 5$

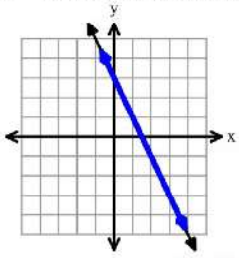
25. Passes through $(-1,4)$ and $(10,-18)$ (x_1 y_1 x_2 y_2)

$m = \frac{-18-4}{10-(-1)} = \frac{-22}{11} = -2$

A. $y = \frac{1}{2}(x - 10) + 18$
B. $y = -\frac{1}{2}(x + 1) - 4$
C. $y = -2(x - 10) - 18$ $y = -2(x-10)-18$ or $y = -2(x \oplus 1) + 4$
D. $y = -2(x - 1) + 4$ oops!

For #26 – 27: What is the solution for each system shown?

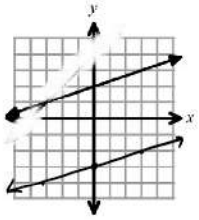
26)



A. $(-4, 2)$
B. $(1, 3)$
C. No Solution
D. Infinitely Many Solutions

Same line 2x

27)



A. $(-3, 1)$
B. $(-1, 3)$
C. No Solution
D. Infinitely Many Solutions

// lines don't intersect

28) Which statement below is always true?

A. A linear system with two lines with the same slopes and different y-intercepts has one solution. No
B. A linear system with two parallel lines has no solution. TRUE
C. A linear system with one vertical line and one horizontal line has no solution. one solution
D. A linear system with two vertical lines has one solution.

No solution

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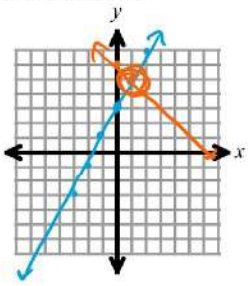
For #29 – 30: Solve each system for (x, y). Graphs are provided but are not required.

29) $\begin{cases} y = 2x + 3 \\ y = -x + 6 \end{cases}$

A. $(3, 7)$
B. $(1, 5)$
C. $(-3, 1)$
D. $(7, 15)$

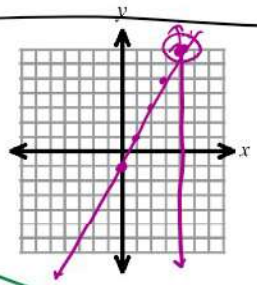
$2x + 3 = -x + 6$
$+x \quad +x$
$3x + 3 = 6$
$-3 \quad -3$
$\frac{3x}{3} = \frac{3}{3}$
$x = 1$
$(1, 5)$
$y = 2(1) + 3$
$y = 5$



30) $\begin{cases} y = 2x - 1 \\ x = 4 \end{cases}$

A. $(2.5, 4)$
B. $(4, 3)$
C. $(4, 7)$
D. $(-1.5, 4)$

$(4, 7)$
$y = 2(4) - 1$
$y = 7$



31) What is the value of x for the system shown? $\begin{cases} x = 2y - 14 \\ x = -6y + 10 \end{cases}$

A. $x = 3$
B. $x = -16$
C. $x = -1$
D. $x = -8$

$2y - 14 = -6y + 10$
$+6y \quad +6y$
$8y - 14 = 10$
$+14 \quad +14$
$\frac{8y}{8} = \frac{24}{8}$
$y = 3$
$x = 2(3) - 14$
$x = -8$
$(-8, 3)$
$x \quad y$

32) What is the value of y for the system shown? $\begin{cases} 3x + 2y = -2 \\ -3x + y = 38 \end{cases}$

A. $y = 18$
B. $y = 20$
C. $y = 12$
D. $y = -8.7$

$\frac{3y}{3} = \frac{36}{3}$
$y = 12$

33) Solve the system: $\begin{cases} -3x + 4y = 11 \\ -2(2x + 2y = 2) \end{cases}$

A. $(-1, 2)$
B. $(2, -1)$
C. $(7, -6)$
D. No solution

$-3x + 4y = 11$
$-4x - 4y = -4$
$-7x = 7$
$\frac{-7x}{-7} = \frac{7}{-7}$
$x = -1$
$(-1, 2)$
$3x + 4y = 11$
$-3 \quad -3$
$\frac{4y}{4} = \frac{8}{4}$
$y = 2$

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34) Which system below has *infinitely many solutions?*

A) $\begin{cases} x - 2y = 8 \\ -x + 2y = -7 \end{cases}$ $0 = 1$ No Solution

B) $\begin{cases} x + 3y = -4 \\ -x - 6y = 4 \end{cases}$ $0 = 0$ Infinitely Many Solutions

C) $\begin{cases} -5x + 7y = -9 \\ 5x + 7y = 0 \end{cases}$

D) $\begin{cases} -4x - 11y = 20 \\ 4x - 11y = 2 \end{cases}$

35) Which system below models this situation? A store is having a sale on shirts and jackets. Steve bought 7 shirts and 3 jackets, and he spent \$320. Ryan bought 5 shirts and 2 jackets, and he spent \$220. Let x = number of shirts purchased and y = number of jackets purchased.

shirts + jackets = total

$7x + 3y = 320$
$5x + 2y = 220$

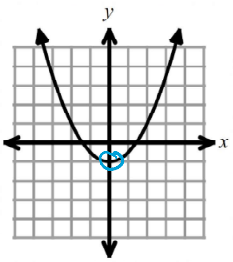
A) $\begin{cases} 7x - 3y = 320 \\ 5x - 2y = 220 \end{cases}$

B) $\begin{cases} 7x + 3y = 320 \\ 5x + 2y = 220 \end{cases}$

C) $\begin{cases} 7x + 3y = 220 \\ 5x + 2y = 320 \end{cases}$

D) $\begin{cases} y = 7x + 3 \\ y = 5x + 2 \end{cases}$

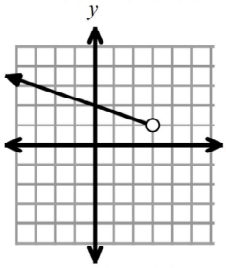
36) What is the domain and range of the graph shown to the right?



A. D: all real numbers; R: $y \geq -1$
B. D: all real numbers; R: $y \geq 0$
C. D: all real numbers; R: $y \leq -1$
D. D: all real numbers; R: all real numbers

above the height of -1

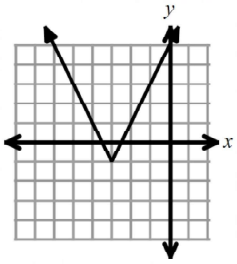
37) What is the domain and range of the graph shown to the right?



D R
(3, 1)
to the left <
above >

A. D: all real numbers; R: all real numbers
B. D: $\{x > 3\}$; R: $\{y < 1\}$
C. D: $\{x > 1\}$; R: $\{y < 3\}$
D. D: $\{x < 3\}$; R: $\{y > 1\}$

38) What is equation of the absolute value function graphed below?



A. $y = -2|x + 3| + 1$
B. $y = -2|x - 3| + 1$
C. $y = 2|x + 3| - 1$
D. $y = 2|x - 3| - 1$

open up (positive "slope")

Vertex = $(-3, -1)$
h k
change the sign of h!

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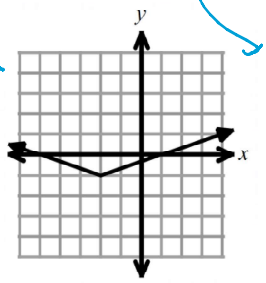
39) What is the graph of $y = -\frac{1}{3}|x + 2| - 1$?

vertex $(-2, -1)$

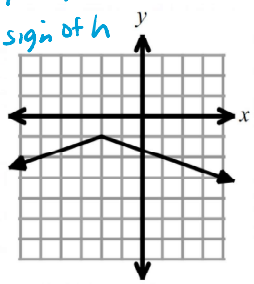
opens down

change sign of h

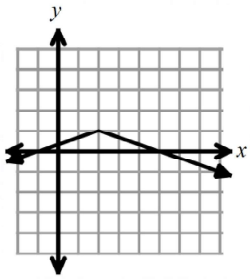
A)



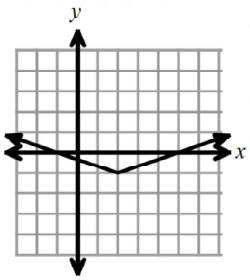
B)



C)



D)



40) Consider the function $f(x) = -|x - 1| + 4$. What are the transformations from the parent function $y = |x|$ to get the graph of $f(x)$?

vert reflect

A) vertical reflection, stretch, shift up 1, shift left 4
B) stretch, shift left 1, shift down 4
C) vertical reflection, shift right 1, shift up 4
D) vertical reflection, stretch, shift left 1, shift down 4

41) Solve the equation for x: $-2|x| + 6 = -8$

A) $x = \pm 1$
B) $x = 7$
C) $x = 1$
D) $x = \pm 7$

$-6 \quad -6$

$-2|x| = -14$

$-2 \quad -2$

$|x| = 7$

$x = \pm 7$

42) Solve the equation for x: $4|x - 5| + 3 = 15$

A) $x = 8, x = 2$
B) $x = \pm 8$
C) $x = \pm 3$
D) no solution

$-3 \quad -3$

$4|x-5| = 12$

$4 \quad 4$

$|x-5| = 3$

① $x - 5 = 3$ ② $x - 5 = -3$

$+5 \quad +5$ $+5 \quad +5$

$x = 8; \quad x = 2$

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43) Solve the equation for x: $5|x+1| = -20$

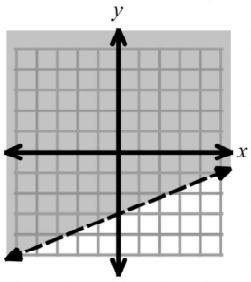
A) $x = \pm 4$
B) $x = -3; x = 5$
C) $x = \pm 15$
D) no solution

$|x+1| = \Theta 4$ → $|m| \neq$ negative

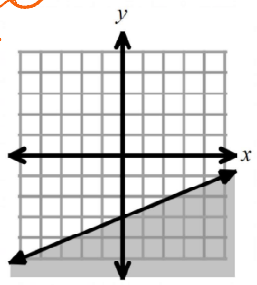
No Solution

44) Which coordinate system below shows the graph of $y \geq \frac{2}{5}x - 3$?

A)

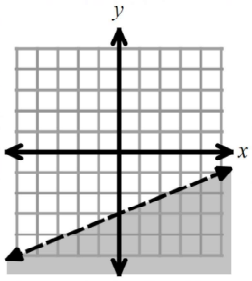


B)

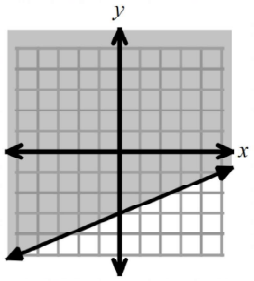


solid line
shade above

C)



D)



20 → y-int

45) What is the explicit formula for the arithmetic sequence 17, 14, 11, 8, 5, ... ?

-3 -3 -3 -3
slope

A) $a_n = 3n + 17$
B) $a_n = -3n + 20$
C) $a_n = -3n + 17$
D) $a_n = 3n + 20$

46) Convert to slope-intercept form: $-2x - y = 7$

+2x +2x

$-y = 2x + 7$

$-1 \quad -1 \quad -1$

$y = -2x - 7$

A. $y = 2x + 7$
B. $y = -2x + 7$
C. $y = -2x - 7$
D. $y = 2x - 7$